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DETECTION OF TRICHOMONAS VAGINALIS IN WOMEN WITH VAGINITIS IN MOSUL CITY

Khansaa AZEEZYONIS AL-TAEI[1]

University of Mosul, Iraq

Abstract:

Trichomoniasis infection is one of the sexually transmitted diseases, and it is one of the most common organisms that cause inflammation. In the female reproductive tract, which is usually limited to the vulva, vagina and cervix. Trichomonas vaginalis infection is associated with a higher risk of HIV infection and pregnancy complications. The aim of this study is to determine the prevalence of vaginal trichomoniasis among married women in Lab of Al-khansaa teaching hospital and Private clinic for obstetrics and gynecology in Mosul city. And also study the effect of some factors that affect the spread of these parasites and the relationship of symptoms of disease to the presence of the parasite .

This study was conducted on 120 married women attended to Al-khansaa teaching hospital and Private clinic for obstetrics and gynecology in Mosul city /Iraq from March 2022 to July 2022. (age range :20 -52 year) , information was collected From each woman including age , occupation, educational level, , pregnancy , any clinical symptoms such as vaginal discharge, itching, and others . each patient was examined by Dr.Salema Shukr Al-Khafaf using a sterile speculum to taken vaginal swabs , for direct microscopic examination.

Keywords: Trichomoniasis, Trichomonas Vaginalis, Sexually Transmitted Diseases.

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[1] Khansaaazeez98@uomosul.edu.iq

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Introduction:

Sexually transmitted diseases that attacks a person as a result of having sex with an infected person, which are caused by pathogens such as bacteria, fungi, viruses and parasites. Among the sexually transmitted disease is a parasitic infection that is gradually gaining attention because of the significant implications for human health (Malla&, Goyal ,2012). One of these diseases Parasite that infects humans with Trichomoniasis .

Trichomoniasis caused by anaerobic parasites known as *Trichomonas vaginalis*. It is highly rated among STDs (non-viral, curable, Infection of the genitourinary system in humans (Ahn et al 2008), and its incidence is estimated in all around the world with 180 million new cases annually (Mairiga et et, 2011). It is associated with many complications of pregnancy, urogenital infections for males and females, and exists primarily in the human urogenital tract and an increase in the incidence of Transmission of HIV (Rein,2020).

The life cycle of this parasite is simple as it includes the form of infective trophozoites only and lack stage Cyst (Strous ,2008). This trophozoite reproduces asexually by fission.Longitudinal bilateral, retaining the nuclear membrane surrounding the vaginalis nucleus. throughout the cleavage period. The parasite is endemic to the mucous membrane of the surfaces of the human urogenital tract(. Sehgal et al., 2012).

The parasite usually feeds on the surface of the mucous membrane of the vagina, ingesting bacteria and white blood cells and growing on the wide range of pH at optimum level between 6-6.3 , temperature between 35-37 °C , and it tolerates a low level of oxygen and it anaerobic, and the parasite can live up to 6 to 24 hours in the water pool and in the urine and semen, while taking up to 30 minutes when exposed to air . (Guschina et al., 2009) Acute infection is characterized by severe itching, vaginitis, vulvitis , It is accompanied by dysuria and dyspareunia, macular vaginitis (the appearance of a thousand wisps) strawberry appearance, which is the appearance of small hemorrhagic spots on the vaginal mucosa and cervix, which secretion is usually frothy and foul smelling.Yellow or green, mucopurulent, abundant. These signs and symptoms are Periodicity and worsens at the time of menstruation (Sherrard et al.,2011). a randomized controlled trial in HIV-uninfected women demonstrated that multidose metronidazole 500 mg twice daily for 7 days reduced the proportion of women with Trichomonas infection at 1 month test of cure compared with women receiving single-dose therapy (2 g) (Patrica et al.,2022). Further, correct diagnosis of trichomoniasis is imperative in that sexual partners require treatment for control of this STI(Barbara et al,.2021).some study results confirmed the geographic expansion and diversity of the *T. vaginalis* population (Squire et al,.2020). Evidence from one of the review indicates for need the concern stakeholders to attempts a holistic approach towards eradicating the disease in our environment (Bright et al,.2019)

Materials and methods:

This study was conducted in Lab of Al-khansaa teaching hospital and Private clinic for obstetrics and gynecology in Mosul city., during the time period from March 2022 to the month of July 2022, the study population included 120 women suffering from symptoms of infestation with the trichomoniasis parasite.vaginally, their ages ranged between 20-52 years, in addition to 12 healthy women within the range The age is close to representing the control group. before collecting and examining the samples, a group with information on the patients was discussed , Suspected infection with trichomoniasis. for this purpose, it includes age, occupation, educational level, residence, medical history and symptoms such as the presence of secretion, itching, dysuria, . vaginal swabs collected with sterile cotton swabs From the cervix and the lateral part of the vagina using a colposcope, by the clinician. It was used for direct examination recording the pH of the vagina using detection tapes pH. In addition to the collection of vaginal samples similar to the number of 15 cases representing the group controller, that is, who does not suffer from symptoms of infection.

Wet mount examination:

Within 5 minutes of sample collection, the vaginal swab is smeared on a clean glass slide. To be examined under a light microscope with a force of 10X and then 40X, after placing the slide cover on it, swabs were fixed with 70% ethanol for further staining with Papanicolaou and examined under oil immersion (1000 ×) (Lawing et al,.2000) .the examination was considered positive in the case of the presence of the parasite and observing its shape and undulating movement, while the test was considered negative when the parasite was not seen within 3-5 minutes of the examination continuous test slide.

Statistical analysis:

After the results were obtained, they were presented in the form of percentages. In statistical tables, and done considering the results meaningful and statistically significant if the (p-value $\leq$ 0.05,) , using Chi- square test.

Studying some factors that may have a role in the spread of parasite infection

Result:

The results of this study showed that the prevalence of *Trichomonas vaginalis* parasites among married women with symptoms of the disease were 4 positive samples out of 120 samples, i.e. a prevalence rate of 2.3 %. The results of the statistical analysis showed that this value is not represent any statistical significance,(p- value =0.122). It further confirms the importance of spreading this disease in the study population, that the number of negative samples (116) out of 120 samples, i.e. with a percentage of 96.6% . According to the statistical analysis, it was statistically significant whereas (p-value=0.000).

1- The relationship between age groups and the prevalence of infection with *Trichomonas vaginalis*:

The ages of the women included in the study ranged between 20-52 years, and then they were distributed to:

Three age groups, the first category is from 20-29 years old, the second category is from 30- 39 years and the category ,The third is from 40 years and over, as shown in Table (1) and the highest percentage was Infection with *T.vaginalis* in the second age groups, represented by 49 (40.8%) a sample of The total number of samples where the infection rate in this group was 4.1%, followed by the first age group and represented by 34 samples (28.3%), with an infection rate of (2.9%), as for the representative third age groups, with 37 samples (30.8%) gave the lowest percentage of infection (2.7%). The results showed statistical analysis that the difference is not significant and has no statistical significance between the age groups and the percentages of parasite infection, and the prevalence of infection is not related to age groups.

Table (1) The relationship between age groups and the prevalence of infection with *Trichomonas vaginalis*

Categories Age	Year	No.of samples(%)	No.of Positive case(%)	P-value
First	20-29	34(28.3%)	1(2.9%)	1.000
Second	30-39	49(40.8%)	2(4.1%)	
Third	40->	37(30.8%)	1(2.7%)	
Total		120(100%)	4	

2- The relationship of infection with *Trichomonas vaginalis* with the educational level:

The educational level is divided into three levels, the first level (basic education) and the second level (intermediate education) and the third level (university education and above), and the relationship between the infection with *Trichomonas vaginalis* and the educational level of women with symptoms of the disease is higher percentage of infection was among the first level, which represented 45 samples (37.5%) of the total for samples where the infection rate within this level was 4.4 % of the total samples of the level, followed by the second level represented by 29 samples (24.1%) with an infection rate of 3.4 %, while the record the third level represented by 46 samples (38.3) %, the lowest infection rate was (2.1 %), as it is shown in Table (2) .The results of the statistical analysis showed that the difference significant between the prevalence of infection and the educational level, and there is no relationship between the prevalence of infection and the level of educational level.

Table(2)the relationship between the infection of *Trichomonas vaginalis* the and the educational level of patients

educational level		No.of samples(%)	No.of Positive case(%)	P-value
first level	basic education	45(37.5%)	2(4.4%)	0.373
second level	intermediate education	29(24.1%)	1(3.4%)	
third level	university education and above	46(38.3 %)	1(2.1%)	
Total		120(100%)	4	

3- The relationship of infection with *Trichomonas vaginalis* and the woman being an employee or a housewife:

The relationship between infection with *Trichomonas vaginalis* and the job of those included in the sample appeared as:

It is shown in Table (3) ,that the infection rate was higher among housewives represented by 76 samples (63.3%) of the total samples, where the infection rate reached (3.9)% , followed by the infection rate among female employees represented by 34 samples (28.3%), which constituted an infection rate (2.9)%.

As for the female students category, which is represented by 10 samples (8.3 %), no infection rate was recorded.

The results of the statistical analysis showed that the difference is not significant, and there is no correlation between the prevalence of

Infection and function of patients.

Table (3) The relationship between infection with *Trichomonas vaginalis* and function for patients.

Function	No.of samples(%)	No.of Positive case(%)	P-value
housewives	76(63.3%)	3(3.9%)	0.182
female employees	34(28.3%)	1(2.9%)	
female students	10(8.3%)	0(0%)	
Total	120	4	

4- Correlation between *Trichomonas vaginalis* parasites and the pH of secretion vaginal.

The vagina has an acidic environment, with a pH between 3.8 and 4.2.

any imbalance in the natural balance of the vagina may lead to an increase in pH values in the vagina, as shown in Table (4) ,the pH of vaginal swabs has been classified into four grades, first degree from 5 - 5.5, second degree from 6 -6.5, third degree from 7 -

7.5, and the fourth degree of 8 or more, and the highest percentage of infection was for the third degree, which represented 6 samples (5%), where the percentage of infection within this grade was (16.6%), followed by grade the second was represented by 35 samples (29.1%) with infection rate of (5.7%), Followed by the first degree that

It was 70 (58.3%) with an infection rate of (1.4%), and no infection rate was recorded at the fourth degree

In the fourth quarter, the relationship of infection with the parasite *Trichomonas vaginalis* with the pH was statistically analyzed.

The result was that the difference is not significant, that is, there is no relationship between the spread of the parasite and the parasite pH.

Table (4) the correlation between *Trichomonas vaginalis* parasites and the pH of vaginal secretion.

grade	pH	No.of samples(%)	No.of Positive case(%	P-value
first degree	5-5.5	70(58.3%)	1(1.4%)	0.376
second degree	6-6.5	35(29.1%)	2(5.7%)	
third degree	7-7.5	6(5%)	1(16.6%)	
fourth degree	8 ≤	9(7.5%)	0(0%)	
Total		120	4	

5- Correlation of clinical symptoms with *Trichomonas vaginalis* infection:

with the parasites of *Trichomonas vaginalis* usually appear in women within weeks, months or years after the infection, these symptoms may appear acute or chronic and may be without symptoms, and through the results of this study represented the symptoms that forced the patient to attend clinics to make the necessary examinations in the following, vaginal secretion constituted 103 cases (85.5%) of the total

pathological cases and vaginal itching accounted for 75 cases (62.5%), and lower abdominal pain accounted for 61 cases (50.8%) and bad smell 46 cases (38.3%) and

dyspareunia 29 cases (24.1%) and dysuria was 25 cases (20.8%) and the highest rate of infection associated with these symptoms was recorded with dyspareunia with a rate of (6.8%), followed by lower abdominal pain with a percentage of (4.9%), an unpleasant smell was present a rate of (4.3%) was vaginal secretion, at a rate of (3.8)%, vaginal itching, at a rate of (2.6)%, and no infection rate was recorded at dysuria.

It was found that there was no relationship between the symptoms appearing on the patient and the presence of infection.

Table (5): Clinical symptoms associated with *Trichomonas vaginalis* infection

Clinical symptoms	No.of samples(%)	No.of Positive case(%	P-value
vaginal secretion	103(85.8%)	4(3.8%)	0.572
vaginal itching	75(62.5%)	2(2.6%)	
bad smell	46(38.3%)	2(4.3%)	
dysuria	25(20.8%)	0(0%)	
dyspareunia	29(24.1%)	2(6.8%)	
abdominal pain	61(50.8%)	3(4.9%)	

Knowing that all the patients were suffering from more than one health symptom, i.e. a group of symptoms in at the same time, for example, secretion with itching and dyspareunia, and you may suffer from all symptoms combined. In this study, the highest percentage of infection was among women who suffered from secretion vaginal with itching and pain in the lower abdomen or unpleasant smell by 50% (p=000.00), followed by symptoms accompanying women who suffered from vaginal with itching, pain in the lower abdomen, bad breath and dysuria. Sexual intercourse by 25%, as well as the clinical symptoms of vaginal secretion with itching and hardness. Intercourse by 25%, and the clinical symptoms represented by vaginal secretion, unpleasant odor and dysuria.In urine, no infection rate was recorded (Table 6), and other symptoms were also observed on the Patients not mentioned, such as headache, pain in the back and on both sides.

Table (6) Group of clinical symptoms associated with infection of 4 patients with the parasite Trichomonas

clinical symptoms	No.of Positive case(%)	P-value
secretion vaginal, itching, unpleasant odor, abdominal pain	2(50%)	0.000
secretion vaginal, itching, unpleasant odor, abdominal pain, dyspareunia	1(25%)	
secretion vaginal, itching, dyspareunia	1(25%)	
secretion vaginal, unpleasant odor, dysuria	0(0%)	
Total	4(100%)	

6 - Correlation of infection with the color of vaginal secretion

A discharge of secretion from the vagina (discharge vaginal) is considered normal, but if it is these secretions have any color (white, yellow, or green) or an abnormal odor, or if they accompanied by pain or itching in the vagina, this is a sign of a problem, and as shown in

Table (7) recorded the highest infection rate with yellow-colored secretions which was represented by 15 samples (12.5%) of the total samples, where the infection rate was (20%), followed by the white secretion, which was represented by 23 samples (19.1%) with a percentage of infection (4.3,%) As for the yellow-green and colorless (transparent) secretions, no Infection rate, and after conducting a correlation test between the appearance of the infection and the color of the secretions, it was found that there is association between yellow secretions and parasite infection (P-value =0.002).

Table (7) The nature of vaginal secretions associated with infection with vaginal stimuli

color of vaginal secretion	No.of samples(%)	No.of Positive case(%)	P-value
yellow-colored secretions	15(12.5%)	3(20%)	0.000
yellow-green secretions	1(0.8%)	0(0%)	
white secretion	23(19.1%)	1(4.3%)	
colorless (transparent) secretions	81(67.5%)	0(0%)	
	120(100%)	4	

7- Relationship between the recurrence of symptoms and infection with the *Trichomonas vaginalis* parasite

Prescribing treatment without diagnosing or not knowing the microbe causing the symptoms of infection may lead to repeat the appearance of the symptoms again, and as shown in Table (8) that

patients who suffer from recurring symptoms such as excessive secretion, itching and odor bad breath and others had the highest rate of infection, as it reached three infections, with a rate of (3.5%) compared to the patients who had symptoms for the first time, with a rate of one infection and a percentage of (2.8%) .The results of the statistical analysis showed that there were no statistically significant differences between the incidence of infection in the two categories, that is, there is no relationship between the frequency of symptoms and the prevalence of infection. On the other hand, patients those who suffer from recurring symptoms were 85, or (70.8%), and they constitute

There is a statistically significant difference if they are compared with the patients who complain of the first symptoms appearing.

Once, their number was 35 at a rate of (29.1%), where it was (P .-value =0.000).

Table (8) Frequency of symptoms of infection with the parasites of *Trichomonas vaginalis*

symptoms appearing	No.of samples(%)	P .-value	No.of Positive case(%)	P .-value

first symptoms appearing	35(29.1%)	0.000	1(2.8%)	0.835
frequency of symptoms	85(70.8%)		3(3.5%)	
Total	120		4	

8- Relationship of the spread of the *Trichomonas vaginalis* parasite to pregnancies:

Although 20 out of 120 pregnant women had symptoms of infection, it did not any rate of infection with the *Trichomonas vaginalis* parasite is recorded in cases of pregnancy, as is the case in the control group, which consisted of 12 cases, did not suffer from symptoms of infection, no percentage was recorded infection with the parasite.

Discussion:

The *Trichomonas vaginalis* parasite that causes Trichomoniasis and one of the most important sexually transmitted diseases worldwide. (Mushref et al, 2011) It is also related to other endemic microorganisms genital and urinary ducts such as bacteria and yeasts (Abduluahab et al, 2011).

Infection with the parasite shows different and complex symptoms, and it mainly affects women, men are few and infected men being predominantly asymptomatic (Hillier et al.,2021) and usually without symptoms, and a high percentage of women do not appear they have the symptoms (Marquardt et al, 2003), in addition to the association of parasite infection with a variety of dangerous complications for the woman, the pregnant mother and the fetus (Mann et al., 2010).

Although all patients have the same symptoms of infection with the *Trichomonas vaginalis* parasite, but the prevalence rate the actual value of this parasite was very low. All this comes to indicate that the parasite *Trichomonas vaginalis* not constitutes a health problem with an epidemiological level in the community of married women in the city of Mosul. This result was 3.2% in agreement with a study conducted by (Rezaeian et al, 2009) in Taharan (Iarn), and another study for

(luppi et al, 2011) in Paulo Sso, Brazil, A study in Baghdad for (Dawood et al, 2013) where the rate of infection was recorded it reached 2.8% out of1600 ,The low prevalence in this study may be due to the large number of doctors prescribing the drug Flagyl Metrandiazole as an anti-inflammatory in general, which is the drug Better to eradicate the parasite, in addition to programming awareness of the sexually transmitted mother.and in Malaysia (Amal et al, 2010) in the clinics of the sick mother sexually transmitted infections were detected in 0.36% of cases, while the percentage of *Trichomonas vaginalis* was in Nigeria 0.37% in a study for (Omoregie, 2010), and these studies assumed that the rates of the low prevalence among women can be attributed to the use of herbal medicine lotion for cleaning the internal and external areas of the vagina, or to the presence of health education programs about the transmitted disease sexually.

In addition, the prevalence of *Trichomonas vaginalis* in some countries of the world was high compared to our study the current one, such as that conducted in Khartoum (Sudan) for (Saleh et al, 2014) where it recorded a percentage of 85% of 297 women suffer from vaginal secretion, and with what was recorded by (Falk et al,2005) in Egypt, with an infection rate of 91.3%.

This wide spread of Trichomoniasis can be attributed to little or no interest the problem of this disease and its importance to public health (Amadi & Nwagbo, 2013) . The difference in the percentage of infection with Trichomonas vaginalis is due to several factors, including the difference in

The size of the studied samples or groups of women selected for the study or the time period during which they were covered each study or difference in the methods of work and diagnosis used, as well as the nature of the traditions social partners in different regions of the world, especially sex partners, and the different living conditions that they have The obvious effect on recording different rates of infection (.Dawood et et, 2013).

It is clear from Table (1) that the highest percentage of infections with *Trichomonas vaginalis* was recorded in the age group is from 30-39 years at a rate of 4.1%, followed by the age group from 20-29 years with a percentage of 2.9%, and it was clear that the percentage of infections decreased with increasing age, as it was the lowest infection rate in the group age 40 years and over, with a rate of 2.7%, and the reason for the relative high infection in these groups is attributed to age to the fact that these ages represent the early years of marriage, as cases of sexual activity increase, and in at this stage, reproductive hormones reach their highest levelsIt declines with age (Abduluahab et al., 2011).

Despite the slight difference in the extent of the age group, the results of this study agreed with what was statedwith what came by (Chalechale and Karimi) in Iran (2010) where they recorded the highest infection rate of 33% within the age group 30-39 years, followed by the age group 20-29 years. this study did not agree with other studies such as the one he did(Abduluahab et al, 2011) in Tikrit (Iraq), in which they explained that the highest rate of infection was between the age group 46-55 years.(Robert, 2005) pointed that the cause of infection in older women may be due to a decrease in the body's resistance the general health decline, and the pH value of the vagina may rise to 7, which is withinThe appropriate extent for the growth of the parasite.

Relationship of educational level to the prevalence of parasite infection

The educational level has a significant impact on the incidence of *Trichomonas vaginalis*, and this study showed the highest infection rate among women with basic education was 4.4%, followed by women with primary education intermediate and university education by 3.4 % and 2.1%, respectively, and the results of the analysis showed statistically, the difference is not significant with respect to the level of education and its relationship to infection with *Trichomonas vaginalis*. These results were close to most studies related to the prevalence rate of the Trichomonas vaginalis parasite that:

It was stated that the low level of education was accompanied by a high rate of dysentery, such as a study of (Sumadhya et al,2012) (in Sri Lanka, study in the United States, (Anang ,2010) and another study in Vietnam (Anh, 2012) and another in Iraq, (Dawood et et, 2013) in which they showed that the prevalence of vaginalis infection was higher in women with lower educational level Perhaps the reason for the high incidence of infection among women with low education are due to their lack of interest in their health, ignorance of health education and lack of referred them to gynecological clinics on an ongoing basis to receive the necessary treatment.

Correlation of the spread of the parasite with the type of job:

Also the function is related to the spread of *T. vaginalis*, where it was observed in most studies that female employees had a higher rate of infection than housewives, as a study carried out by (Amadi &

Nwagbo, 2013) in (Nigeria) female employees had the highest infection rate 23.07%, followed by female students 20.63%, while housewives had the lowest 8.33%, and other studies in Iraq (Dawood et al,2013), the percentage of female employees was higher than that of housewives 3.6% and 2.6%, respectively, and another in India (Deivam et al, 2014) female employees were infected with 42.8%, while housewives were 26.6%, and these studies noted a high prevalence Infection among female employees may be due to little or no marital status and personal hygiene non-existent, or their use of public health facilities (the French model) in government departments, which helps infection with *T. vaginal* .

In our current study, there were no statistically significant differences between parasite infection and it is related to the job, and housewives had the highest infection rate of 3.9% of female employees 2.9% the female students did not record the percentage of infection, and this result agreed with a study in Iraq , (Khalil et al, 2012)where housewives were among the total number of infecte women, the highest rate of infection was 27.2% of the percentage of female employees who were infected was 12.9%, The reason for the high incidence of infection among housewives may be attributed to the husband, because the marital lifestyle it is one of the factors that may increase the spread of trichomoniasis, or the lack of health awareness about mother land sexually transmitted.

The relationship between parasite infection and pH:

The use of the pH index is important in knowing the deviation of the vaginal environment from the optimum acidity is pH =4.5, and Figure 4 shows the distribution of parasite infestations and their relationship

pH number, and the incidence was distributed to different pH numbers, but they are higher than a score of 4.5 represents the state of safety and non-infection, and it appeared in the results of this study that the highest percentages of incidence of the samples that were examined is those that have a pH of 7 - 7 .5 with a percentage of 16.6%, followed by samples with a pH of 6 – 6.5 %, with a percentage of 5.7 %. It has a pH of 5 - 5.5 at 1.4 %, and the relationship of the propagation of the parasitoid has been analyzed pH statistically, and the result was that the difference is not significant, and in a study of (Al -Khtawi et al, 2012) The highest rate of infection was at pH 6, and studies conducted

(Dawood et al,2013) the highest infection rate was at pH 6-7 despite the difference in the pH value, it was higher than the pH value the optimum pH of the vagina, and the reason for this is due to the high percentage of estrogen lead to an increase in the deposition of glycogen in the epithelial cells and thus an increase in the pH

(Jawetz et al,2001). (Schwebke et al,.2020)

Clinical symptoms associated with Trichomoniasis in married women

In this study clinical symptoms represents 3.3% in married women with trichomonasis compared to 96.6%, in which the presence of parasite infection was not proven with the presence of clinical symptoms, and for for women who do not suffer from symptoms of the disease, which were represented in 12 cases, no infection rate was recorded *Trichomonas vaginalis* parasite. many studies have shown that the highest rates of parasite infection were associated with always with the appearance of symptoms, such as a study for (Amadi& Nwagbo, 2013) where the percentage of married women suffer from symptoms of 16.27%, while the percentage of women without symptoms is

1.50% despite the importance of the symptoms of the disease in the diagnosis, but in this study it was a parasite *T.vaginalis* are responsible for the appearance of these symptoms in3.3% of cases, as for the rest of the cases the rate of 96.6 % of these symptoms was not due to parasite infection, but may be due to other causes, such as bacterial or fungal infection, and others, confirm the results of the statistical differences.

It was meaningful ,as for the clinical symptoms associated with women infected with the *T.vaginalis* parasite in this study, it varied between dyspareunia, which formed the highest rate of appearance in the women who appeared to them

Symptoms of infection with a percentage of (6.8%), followed by lower abdominal pain with a percentage of (4.9)%, then an unpleasant smell with a percentage of 4.3 %, vaginal secretion (3.8%), vaginal itching (2.6)%, and the percentage was not recorded infection with dysuria as shown in table(5). This study agreed with many of the studies that indicated that infection with the *T.vaginalis* parasite is associated with these symptoms and vulvovaginitis (Adeoye& Akande, 2007).

In our study, the highest percentage of infection among women who suffered from vaginal secretion with itching and pain in the lower abdomen or unpleasant odors was 50% (P-value =0.000) followed by the symptoms associated with women who suffered from vaginal

secretion with itching and lower pain. And foul odor and dyspareunia at a rate of 25%, as well as the clinical symptoms of:
Vaginal secretion with itching and dyspareunia by 25%.
Vaginal secretion, unpleasant odor and dysuria, no infection rate was recorded (Table 6).

The results of this study showed that the highest rate of infection with the *T.vaginalis* parasite amounted to 1.23%

For women who have experienced a vaginal secretion of a yellowish nature, which is shown by the results of this study, there is a statistically significant relationship between yellow secretion and infection of parasite (P-value =0.002), while secretion was followed by white (creamy) secretion with a percentage of 4.3 %, as for the secretions that are colorless (transparent) and greenish yellow, no percentage of *T.vaginalis* parasite infection appeared. In other study the majority of infected women had cervical lesions, patchy erythema, and white color discharge (Maryam et al,.2021).

Another clinical symptom is the presence of pain in the lower abdomen, as the vaginal wall that forms mainly from smooth muscle cells arranged longitudinally and there are a few fibers arranged circularly to inside, this muscular layer is surrounded by tissue rich in a vascular plexus, and when the epithelial lining of the vagina is affectedWith infection, the entire wall is affected, and the pain increases when pressure is applied to the lower abdomen (Malla, 2012). Itching as aresult to the rotational and rapid movement of the parasite (Al-Tikrity & Al-Badry, 2014).

In comparison with previous studies, we find a discrepancy in the percentages of the nature of clinical symptoms, as he indicated (Mushref et al, 2011). The highest percentage of infection was among women who suffered from secretory gonorrhea with itching, 46.7%, while the symptoms associated with women who suffered from secretory gonorrhea with itching and dysuria were followed by 20.0%, then followed by the clinical symptoms represented by itching only 3.13% and runny nose only 13.3 %And the last case, one case suffered from gonorrhea with dysuria (6.7%) in addition to 31% secretion of women who suffered from vaginal secretion of white secretion in color and 73 yellow-greenish secretions, while null secretions followed. Color by 23%, while foamy secretions appeared by 1% in women infected with the vaginal stimuli parasite.

And another study for Anh (2012), the main reasons leading to women attending the clinic of the mother of women's land were vaginal secretion of unpleasant odor 73.9%, abundant vaginal secretion 60.9%, and yellow-green secretion by 54.3%. Hemorrhagic 30.4% .In this study, only 4 positive cases were infected with *Trichomonas vaginalis* 3.3% (out of 120 cases), which is a small percentage if it is compared to the number of cases suffering from The same ground, therefore, grew there this parasite is not the main cause of these symptoms,Other organisms have a role in this, and the same symptoms of infection with the *T.vaginalis* parasite appear.

As demonstrated in one results other studes, cervical lesions were the most common clinical symptom followed by patchy erythema and vaginal discharge. Similarly, to a previous study confirmed that there is a significantly higher risk of developing cervical lesions in women exposed to *T. vaginalis* compared to those who were not exposed(Su R-Y et al,.2020).

Prevalence of the disease and its relationship to pregnancy

A pregnant woman may be infected with this parasite, which causes premature birth or rupture of the cyst that surrounds the fetus and the placenta and thus miscarriage, or low birth weight and organ infection

Respiratory Syndrome in Infants (Mann et Al,2010) In this study, there were 23 pregnant mothers suffering from respiratory infections.Symptoms of infection, but no

infection rate was recorded with the parasites ofT.vaginalis, and this camethe study is in agreement with (Chinedum et al,2014).

The fact that pregnant women are not infected with this disease may be due to the frequent visits to health facilities regularly for Pregnancy

(Adeoye & Akande, 2007) . In Mazandaran, a province in northern Iran, PCR results records that 0.48% of pregnant women referred to health centers were infected with *T. vaginalis* (Ziaei et al,.2020).

Conclusions:

-The low prevalence of *T.vaginalis* infection in the study population, and this indicates that the disease The product caused by the parasite T.vaginalis. does not pose a danger to married women in the city ofMosul.

-There was no correlation or relationship between the spread of the disease and between age groups and educational level occupational and clinical.

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